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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,109	07/21/2003	David E. McMechan	2001-IP-003050 U1 USA	6120

32376 7590 09/28/2005

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EXAMINER	
KINNEY, NGOC	

ART UNIT	PAPER NUMBER
3672	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,109	MCMECHAN ET AL.	
	Examiner	Art Unit	
	Ngoc Kinney	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *July 12, 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 8-12, 18-27, 29, 31-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Wetzel et al. (U.S. 6,817,410). Wetzel et al. disclose an apparatus for treating a production interval of a wellbore (column 8, line 3), the apparatus comprising:

- a packer assembly (item 46 of figure 2; column 3, lines 49-59);
- a sand control screen connected relative to the packer assembly (item 28 of figure 2; column 3, lines 49-59);
- a cross-over assembly providing a lateral communication path downhole of the packer assembly for delivery of a treatment fluid (column 3, lines 4-6) and a lateral communication path uphole of the packer assembly for a return fluid (item 26 of figure 2; column 3, lines 49-59);
- a wash pipe assembly in communication with the lateral communication path uphole of the packer assembly and extending into an interior of the sand control screen (item 70 of figure 4);
- and at least one sensor operably associated with the wash pipe assembly, the sensor operable to collect data relative to at least one property of the treatment fluid during a

treatment process such that a characteristic of the treatment fluid is regulatable during the treatment process based upon the data (column 10, lines 16-34);

- the apparatus wherein at least one property monitored by the sensor is selected from the group consisting of viscosity, temperature, pressure, velocity, specific gravity, conductivity, and fluid composition (column 4, lines 1-34);
- the apparatus wherein the characteristic of the treatment fluid that is regulated is selected from the group consisting of fluid viscosity, proppant concentration, and flow rate (column 4, line 17);
- the apparatus further comprising a downhole mixer (figure 2); Although Wetzel et al. teaches the use of a cross over assembly, Wetzel et al. is silent on the use of a downhole mixing area or downhole mixer. However, this feature is deemed to be inherent to the Wetzel et al. system. Figure 2 shows that the treatment fluid enters the annulus area and flows up through the wash pipe at the cross over point in the same manner depicted in figure 12 of the application. The fluid treatment function would be inoperative if downhole mixing was not accomplished;
- the apparatus wherein the treatment process is selected from the group consisting of gravel packing, frac packing, acid treatments, conformance treatments, resin consolidations and chemical treatments (column 3, lines 46-49).

Claims 12 and 18-21 recite the apparatus limitations of claims 1 and 8-11, and are distinct only in that the applicant is claiming the monitoring components of the apparatus as recited in claims 1 and 8-11. Therefore claims 12 and 18-21 are rejected for the same reasons enumerated above in the rejection of claims 1 and 8-11.

Method claims 22-27, 29, and 31-35 recite the operational steps related to the apparatus limitations of claims 1 and 8-11, and are therefore rejected for the same reasons enumerated above in the rejection of claims 1 and 8-11.

Method claims 36-49 recite the operational steps related to the limitations of claims 12 and 18-21, and are therefore rejected for the same reasons enumerated above in the rejection of claims 12 and 18-21.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-21, and 36-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Quigley et al (U.S. 6,004,639). Quigley teaches:

- An apparatus for monitoring treatment fluid in a production interval of a wellbore during a treatment process, the apparatus comprising: at least one sensor operably positioned within the production interval of the wellbore; wherein the sensor is operable to collect data relative to at least one property of the treatment fluid during the treatment process; and wherein at least one characteristic of the treatment fluid is regulatable during the treatment process based upon the data (figure 1, columns 9-12);
- The apparatus as recited wherein the at least one sensor is in communication with an energy conductor that is integral with a tubular having a composite structure, the at least one sensor being operably associated with the tubular (figure 1, column 10 lines 52-55);

- The apparatus further recited wherein the tubular forms at least a portion of the washpipe (figure 1, column 12 lines 27-31);
- The apparatus further recited wherein the tubular forms at least a portion of the base pipe (figure 1, column 12 lines 27-31);
- The apparatus as recited wherein the sensor is embedded within an inner surface of the tubular (column 10 lines 63-65);
- The apparatus as recited wherein the sensor is embedded within an exterior surface of the tubular (column 10 lines 63-65);
- The apparatus as recited further comprising a series of sensors operably positioned at predetermined intervals within the production interval of a wellbore that collect data relative to the at least one property of the treatment fluid as a function of position (column 4 lines 13-15);
- The apparatus as recited wherein the at least one property monitored by the sensor is selected from the group consisting of viscosity, temperature, pressure, velocity, specific gravity, conductivity and fluid composition (column 9 lines 17-48);
- The apparatus as recited wherein the characteristics of the treatment fluid that is regulated is selected from the group consisting of fluid viscosity, proppant concentration and flowrate (column 9 lines 17-48);
- The apparatus as recited wherein the treatment process is selected from the group consisting of gravel packing, frac packing, acid treatments, conformance treatments, resin consolidations and chemical treatments (column12 lines 27-31).

Method claims 36-49 recite the operational steps related to the limitations of claims 12-21, and are therefore rejected for the same reasons enumerated above in the rejection of claims 12-21.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-11 and 22-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quigley et al. (U.S. 6,004,639) in further view of Fisher et al. (U.S. 6,554,065).

As stated above, Quigley et al. teaches an apparatus for measuring various fluid properties along a composite wash pipe. However Quigley et al. does not teach the use of the wash pipe within a gravel packing assembly comprised of a packer assembly, a sand control screen, and a cross-over assembly. Fisher et al. teaches an apparatus for treating a production interval of a wellbore, the apparatus comprising:

- A packer assembly (figure 1);

- A sand control screen connected relative to the packer assembly (figure 1);
- A cross-over assembly providing a lateral communication path downhole of the packer assembly for delivery of a treatment fluid and a communication path uphole of the packer assembly for a return fluid (figure 1);
- A wash pipe assembly in lateral communication with the communication path uphole of the packer assembly and extending into an interior of the sand control screen; and at least one sensor operably associated with the wash pipe assembly, the sensor operable to collect data relative to at least one property of the treatment fluid during a treatment process such that a characteristic of the treatment fluid is regulatable during the treatment process based upon the data (figure 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the gravel packing assembly of Fisher et al. with the composite wash pipe of Quigley et al. to obtain fluid treatment data during a gravel packing operation because the system of Quigley et al. is more efficient and effective as it provides added protection of the sensing elements, and as a result extends the life of the equipment.

Method claims 22-35 recite the operational steps related to the apparatus limitations of claims 1-11, and are therefore rejected for the same reasons enumerated above in the rejection of claims 1-11.

4. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being anticipated by Wetzel et al. (U.S. 6,817,410). Wetzel et al. discloses an apparatus for treating a production interval of a wellbore (column 8, line 3) as describe above. With regard to claims 28 and 30, Wetzel et al.

does not teach the measurement of treatment fluid velocity or conductivity. However based on the extensive yet non exclusive recitation of measurable properties recited in lines 9-34 of column 4 of the Wetzel et al. patent, and the ability to applying the continuity equation of fluid mechanics to convert flow rate to fluid velocity, where the flow rate = (area) x (velocity). Additionally, conductivity is the heat transferred to or from the treatment fluid at various points along the wash pipe, it is obvious and well known to one skilled in the art of measuring fluid properties that given temperature readings at various points along the wash pipe, the change in temperature along the pipe can be calculated by applying the fundamental equations of heat transfer (H= kA DT /L). The examiner hereby takes Official notice that these measuring steps would have been obvious to one skilled in the art at the time of the invention in order to determine any measurable property of the treatment fluid as they are elementary and fundamental in the area of fluid property measurement.

Response to Arguments

5. Applicant's arguments filed on July 12, 2005 have been fully considered but they are not persuasive.

The applicant has argued that Wetzel and in combined with Quigley et al. and Fisher do not teach of controlling and altering a characteristic of a treatment fluid during a treatment process based upon data being collected during the treatment process. However, in column 10, lines 16-34, Wetzel states that the fiber optic sensors are used to determine the placement of the treatment as well as other well characteristics during the well injection and that remedial action may be taken if the desired results are not achieved. Quigley et al. (column 3, lines 43-49) and Fisher (column 5, lines 1-10) also teach various types of sensor for identifying and monitoring

downhole conditions. It's obvious that the sensors are attached to the tool to collect data as the slurry is being pumped in to the well, so that one on surface can control the slurry temperature, pressure, viscosity, flow rate, and etc during the treatment process. It would have been obvious to one of ordinary in the art at the time of the invention was made to have use the apparatus and method for packing a well taught by Quigley et al. and Fisher in combination with the intelligent well system taught by Wetzel to monitor and regulate the characteristics of the treatment fluid as being pumped in the well.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc Kinney whose telephone number is 571-272-1615. The examiner can normally be reached on 9-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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